evaluate the need for implementation of additional attenuation devices or other mitigation measures.

(4) *Ramp-up.* (i) Ramp-up shall be used at the beginning of each day's in-water pile-related activities or if pile driving has ceased for more than 1 hour.

(ii) If a vibratory hammer is used, contractors shall initiate sound from vibratory hammers for 15 seconds at reduced energy followed by a 1-minute waiting period. This procedure shall be repeated two additional times before full energy may be achieved.

(iii) If a non-diesel impact hammer is used, contractors shall provide an initial set of strikes from the impact hammer at reduced energy, followed by a 1-minute waiting period, then two subsequent sets.

(iv) Ramp-up shall be implemented if pile driving or removal is delayed or shutdown for >15 minutes due to the presence of a delphinid or pinniped within or approaching the exclusion zone, or if pile driving or removal is delayed or shutdown for >30 minutes due to the presence of a large whale.

(5) *Marine Mammal Exclusion Zones.* (i) The following exclusion zones shall be established to prevent the Level A harassment of all marine mammals and to reduce the Level B harassment of large whales:

(A) An exclusion zone for delphinids or pinnipeds shall be established with a radius of 200 feet (61 meters) waterward of each steel sheet pile during impact pile driving;

(B) An exclusion zone for delphinids and pinnipeds shall be established with a radius of 50 feet (15 meters) waterward of each concrete pile during impact pile driving;

(C) An exclusion zone for large whales shall be established with a radius of 3,280 feet (1,000 meters) waterward of each steel sheet or concrete pile during impact pile driving;

(D) An exclusion zone for large whales shall be established with a radius of 2.5 miles (3,981 meters) waterward of each steel sheet pile during vibratory pile driving.

(ii) Temporary buoys shall be used, as feasible, to mark the distance to each exclusion zone during in-water pile-related activities.

(iii) The exclusion zones shall be used to provide a physical threshold for the shutdown of in-water pile-related activities.

(iv) At the start of in-water pile related activities each day, a minimum of one qualified protected species observer shall be staged on land (or an adjacent pier) near the location of in-water pile-related activities to document and report any marine mammal that approaches or enters a relevant exclusion zone throughout the day.

(v) Additional land-based observers shall be deployed if needed to ensure the construction area is adequately monitored.

(vi) Observers shall monitor for the presence of marine mammals 30 minutes before, during, and for 30 minutes after any in-water pile-related activities.

(vii) In-water pile-related activities shall not occur if any part of the exclusion zones are obscured by fog or poor lighting conditions.

(6) *Shutdown and Delay Procedures.* (i) If a marine mammal is seen approaching or entering a relevant exclusion zone (as specified in § 217.224(5)(i)), observers will immediately notify the construction personnel operating the pile-related equipment to shut down pile-related activities.

(ii) If a marine mammal(s) is present within the applicable exclusion zone prior to in-water pile-related activities, pile driving/removal shall be delayed until the animal(s) has left the exclusion zone or until 15 minutes (pinniped or small cetacean) or 30 minutes (large cetacean) have elapsed without observing the animal.

(7) Additional mitigation measures as contained in an LOA issued under §§ 216.106 and 217.226 of this chapter.

§ 217.225 Requirements for monitoring and reporting.

(a) When conducting the activities identified in § 217.220(a), the monitoring and reporting measures contained in the LOA issued under §§ 216.106 and 217.226 of this chapter must be implemented. These measures include:

(1) *Visual Monitoring.* (i) In addition to the mitigation monitoring described in § 217.224 of this chapter, at least two

protected species observers shall be positioned on land near the 2.5 mile exclusion zone to monitor for marine mammals during vibratory pile-related activities or any other construction activities that may pose a threat to marine mammals.

(A) Observers shall use the naked eye, wide-angle binoculars with reticles, and any other necessary equipment to scan the Level B harassment isopleth.

(B) Observers shall work, on average, eight hours per day and shall be relieved by a fresh observer if pile driving lasts longer than usual (*i.e.*, 12–16 hours).

(C) The number of observers shall be increased and/or positions changed to ensure full visibility of the Level B harassment isopleth.

(D) Land-based visual monitoring shall be conducted during all days of vibratory pile driving.

(E) All land-based monitoring shall begin at least 30 minutes prior to the start of in-water pile-related activities, and continue during active construction and for 30 minutes following the end of in-water pile-related activities.

(ii) At a minimum, observers shall record the following information:

(A) Date of observation period, monitoring type (land-based/boat-based), observer name and location, climate and weather conditions, and tidal conditions;

(B) Environmental conditions that could confound marine mammal detections and when/where they occurred;

(C) For each marine mammal sighting, the time of initial sighting and duration to the end of the sighting period;

(D) Observed species, number, group composition, distance to pile-related activities, and behavior of animals throughout the sighting;

(E) Discrete behavioral reactions, if apparent;

(F) Initial and final sighting locations marked on a grid map; and

(G) Pile-related activities taking place during each sighting and if/why a shutdown was or was not triggered.

(2) *Acoustic Monitoring.* (i) Acoustic monitoring shall be conducted during in-water pile-related activities to identify or confirm noise levels for pile-related activities during in-water construction.

(A) Acoustic data shall be collected using hydrophones connected to a drifting boat to reduce the effect of flow noise and an airborne microphone. There shall be a direct line of acoustic transmission through the water column between the pile and the hydrophones in all cases, without any interposing structures, including other piles.

(B) A stationary two-channel hydrophone recording system shall be deployed to record a representative sample (subset of piles) during the monitoring period. Acoustic data shall be collected 1 m below the water surface and 1 m above the sea floor.

(ii) Background noise recordings (in the absence of pile driving) shall be collected to provide a baseline background noise profile. The results and conclusions of the study shall be summarized and presented to NMFS with recommendations for any modifications to the monitoring plan or exclusion zones.

(iii) All sensors, signal conditioning equipment, and sampling equipment shall be calibrated at the start of the monitoring period and rechecked at the start of each day.

(iv) Prior to monitoring, water depth measurements shall be taken to ensure that hydrophones do not drag on the bottom during tidal changes.

(v) Underwater and airborne acoustic monitoring shall occur for the first five steel sheet pile and the first five concrete piles during the duration of pile driving. If a representative sample has not been achieved after the five piles have been monitored (e.g., if there is high variability of sound levels between pilings), acoustic monitoring shall continue until a representative acoustic sample has been collected.

(vi) Acoustic data shall be downloaded periodically (*i.e.*, daily or on another appropriate schedule) and analyzed following the first year of construction. Post-analysis of underwater sound level signals shall include the following:

(A) RMS values (average, standard deviation/error, minimum, and maximum) for each recorded pile. The 10-second RMS averaged values will be

used for determining the source value and extent of the 120 dB underwater isopleth;

(B) Frequency spectra for each functional hearing group; and

(C) Standardized underwater source levels to a reference distance of 10 m (33 ft).

(vii) Post-analysis of airborne noise would be presented in an unweighted format and include:

(A) The unweighted RMS values (average, minimum, and maximum) for each recorded pile. The average values would be used for determining the extent of the airborne isopleths relative to species-specific criteria;

(B) Frequency spectra from 10 Hz to 20 kHz for representative pile-related activity; and

(C) Standardized airborne source levels to a reference distance of approximately 15 m (50 ft).

(viii) In the event noise levels surpass estimated levels for extended periods of time, construction shall be stopped and NMFS shall be contacted to discuss the cause and potential solutions.

(3) *General Reporting.* (i) All marine mammal sightings shall be documented by observers on a NMFS-approved sighting form.

(ii) Marine mammal reporting shall include all data described previously under Proposed Monitoring, including observation dates, times, and conditions, and any correlations of observed marine mammal behavior with activity type and received levels of sound, to the extent possible.

(iii) A report with the results of all acoustic monitoring shall include the following:

(A) Size and type of piles;

(B) A detailed description of any sound attenuation device used, including design specifications;

(C) The impact hammer energy rating used to drive the piles, make and model of the hammer(s), and description of the vibratory hammer;

(D) A description of the sound monitoring equipment;

(E) The distance between hydrophones and depth of water and the hydrophone locations;

(F) The depth of the hydrophones;

(G) The distance from the pile to the water's edge;

(H) The depth of water in which the pile was driven;

(I) The depth into the substrate that the pile was driven;

(J) The physical characteristics of the bottom substrate into which the pile were driven;

(K) The total number of strikes to drive each pile;

(L) The results of the hydroacoustic monitoring, including the frequency spectrum, ranges and means for the peak and RMS sound pressure levels, and an estimation of the distance at which RMS values reach the relevant marine mammal thresholds and background sound levels.

(M) Vibratory driving results would include the maximum and overall average RMS calculated from 30-s RMS values during the drive of the pile; and

(N) A description of any observable marine mammal behavior in the immediate area and, if possible, correlation to underwater sound levels occurring at that time.

(iv) An annual report on monitoring and mitigation shall be submitted to NMFS, Office of Protected Resources, and NMFS, Northwest Regional Office. The annual reports shall summarize include data collected for each marine mammal species observed in the project area, including descriptions of marine mammal behavior, overall numbers of individuals observed, frequency of observation, any behavioral changes and the context of the changes relative to activities would also be included in the annual reports, date and time of marine mammal detections, weather conditions, species identification, approximate distance from the source, and activity at the construction site when a marine mammal is sighted.

(v) A draft comprehensive report on monitoring and mitigation shall be submitted to NMFS, Office of Protected Resources, and NMFS, Northwest Regional Office, 180 days prior to the expiration of the regulations. The comprehensive technical report shall provide full documentation of methods, results, and interpretation of all monitoring during the first 4.5 years of the regulations. A revised final comprehensive technical report, including all monitoring results during the entire

period of the regulations, shall be due 90 days after the end of the period of effectiveness of the regulations.

(4) *Reporting Injured or Dead Marine Mammals.* (i) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by an LOA (if issued), such as an injury (Level A harassment), serious injury, or mortality, the Holder shall immediately cease the specified activities and report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Northwest Regional Stranding Coordinator. The report must include the following information:

(A) Time and date of the incident;

(B) Description of the incident;

(C) Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);

(D) Description of all marine mammal observations in the 24 hours preceding the incident;

(E) Species identification or description of the animal(s) involved;

(F) Fate of the animal(s); and

(G) Photographs or video footage of the animal(s).

(ii) Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with the Holder to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The Holder may not resume their activities until notified by NMFS.

(iii) In the event that the Holder discovers an injured or dead marine mammal, and the lead protected species observer determines that the cause of the injury or death is unknown and the death is relatively recent (e.g., in less than a moderate state of decomposition), the Holder shall immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Northwest Regional Stranding Coordinator. The report must include the same information identified in § 217.225(a)(3) of this chapter. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with the Holder to determine whether additional mitigation measures or modifications to the activities are appropriate.

(iv) In the event that the Holder discovers an injured or dead marine mammals, and the lead protected species observer determines that the injury or death is not associated with or related to the activities authorized in the LOA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), the Holder shall report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the Northwest Regional Stranding Coordinator, within 24 hours of the discovery. The Holder shall provide photographs or video footage or other documentation of the stranding animal sighting to NMFS.

§ 217.226 Letters of Authorization.

(a) To incidentally take marine mammals pursuant to these regulations, the applicant must apply for and obtain an LOA.

(b) An LOA, unless suspended or revoked, may be effective for a period of time not to exceed the expiration date of these regulations.

(c) If an LOA expires prior to the expiration date of these regulations, the Holder must apply for and obtain a renewal of the LOA.

(d) In the event of projected changes to the activity or to mitigation and monitoring measures required by an LOA, the Holder must apply for and obtain a modification of the LOA as described in § 217.227.

(e) The LOA shall set forth:

(1) Permissible methods of incidental taking;

(2) Means of effecting the least practicable adverse impact (*i.e.*, mitigation) on the species and its habitat; and

(3) Requirements for monitoring and reporting.

(f) Issuance of the LOA shall be based on a determination that the level of taking will be consistent with the findings made for the total taking allowable under these regulations.

(g) Notice of issuance or denial of an LOA shall be published in the FEDERAL REGISTER within 30 days of a determination.